

Statement of
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Committee on Science
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Mr. Chairman and Members of the Committee, thank you for this opportunity to appear today to discuss NASA's ongoing cooperative activities with the Department of Defense (DOD). Let me begin with a discussion of a key part of that cooperation.

Partnership Council

NASA's relationship with the DOD has been coordinated primarily through the Partnership Council since Mr. O'Keefe began his tenure as the NASA Administrator. During the last 18 months, NASA's role has proven instrumental in the evolution of the Council. Early on, key changes began to occur that had elevated the level of the Council members and changed completely how meetings were run. We now have on track an effective mechanism for cooperation in a variety of areas.

The Partnership Council is a multi-agency forum with a diverse membership that includes Mr. Sean O'Keefe, NASA Administrator; Mr. Peter Teets, the DoD Executive Agent for Space and Director of the National Reconnaissance Office; Admiral James Ellis, the Commander of US Strategic Command; General Lance Lord, the Commander of Air Force Space Command; and Dr. Ronald Sega, the Director of Defense Research & Engineering.

The Agency leaders established the Partnership Council to provide a forum for senior DoD and civil space leaders to meet face-to-face on a regular basis to discuss cross cutting issues relevant to the national space community. The purpose of the Partnership Council is to facilitate communication between the organizations and to identify areas for collaboration and cooperation.

On January 14th, 2004, the President visited NASA Headquarters and announced the Vision for Space Exploration. In his address, the President presented a vision that is bold and forward-thinking, yet practical and responsible – one that explores answers to

longstanding questions of importance to science and society and will develop revolutionary technologies and capabilities for the future, while maintaining good stewardship of taxpayer dollars. Key to good stewardship is appropriate partnering between NASA and DoD. The Partnership Council provides us the necessary forum for the strategic communication necessary to turn the vision into reality.

The Council has proven an invaluable mechanism to enable the Agencies that use space assets to discuss their individual mission needs and capabilities in a forum where issues can be framed and appropriate actions assigned to benefit the entire space community.

NASA-DoD Cooperative Activities in Space Transportation

Space launch systems are inextricably woven into the fabric of America's national security. As a result, the ability of the United States to launch critical space assets when and where they are needed is a national security requirement. Civil missions are also dependent on assured access. Currently, access to the International Space Station is dependent solely upon Russian launch capability until the Space Shuttle returns to flight. Accordingly, the Partnership Council routinely discusses launch topics to ensure that agencies partner appropriately in their approach.

Return to safe flight is a driving priority at NASA. It is imperative that we are able to return the Space Shuttle to flight in a safety-driven, expeditious manner. As we implement the recommendations of the Columbia Accident Investigation Board (CAIB), NASA is working with DoD to redefine DoD support for spaceflight operations. Memoranda of Agreement concerning the CAIB recommendations are being reviewed and rewritten at all levels.

In addition to the CAIB activities, there are currently over 400 active agreements between various NASA and DoD organizations. Agreements cover a range of activities between each of the NASA Centers and varied groups within DoD.

Looking to the future, there are new opportunities for collaboration and support between NASA and the DoD. For example, Project Constellation will develop a new Crew Exploration Vehicle for future crew transport. This vehicle will be developed in stages, with the first flight demonstration test in 2008, the first unmanned flight in 2011, and the first crewed flight in 2014. Project Constellation will be discussed at the Partnership Council this spring to ensure that our space partners in DoD are kept fully abreast of the ongoing implementation of our Vision for Space Exploration.

For cargo transport to the International Space Station after 2010, NASA will rely on existing or new commercial cargo transport systems. NASA does not plan to develop new launch vehicle capabilities except where critical NASA needs—such as heavy lift—are not met by commercial or military systems. Discussions are underway with DoD on the topic of assured access to space, exploring the possibility of human rating and enhancing performance and reliability of launch systems to support the Vision for Space

Exploration, and defining a Science and Technology strategy that will advance the nation's ability to meet its future launch needs.

Space Shuttle and Expendable Launch Vehicles

There is a rich history of cooperation with the DoD on the Space Shuttle and Expendable Launch Vehicles. From NASA's early days, we have depended on the DoD to provide launch range facilities and support for the NASA Space Shuttle and expendable launch activities on a reimbursable basis at both the Eastern and Western ranges. NASA represents one of the largest reimbursable customers of the Air Force on the Eastern Range. NASA, in close cooperation with the DoD and Industry, established the Advanced Spaceport Technology Working Group and Advanced Range Technology Working Group. Through these government and industry working groups we are able to identify advanced technologies to ultimately improve the performance and reduce the cost of range operations for all range users.

NASA has also utilized USAF- unique launch support for missions for which commercial capability was not available, such as the Cassini mission that required the performance of the USAF Titan IV. Refurbished Atlas E and Titan II services were provided on a reimbursable basis to support flight of the NOAA Polar Meteorological satellites and the quick response QuikScat mission launched in June 1999. NASA has also conducted shared missions, most recently the Kodiak Star launch on an Athena launch vehicle from Alaska in September 2001 and the February 2000, STS-99 Shuttle Radar Topography Mission (SRTM), which was a joint effort of NASA and the National Geospatial-Intelligence Agency (NGA—formerly NIMA). The data collected provided precise, uniform, 3-dimensional elevation data for roughly 80% of the landmass of the Earth.

The Space Shuttle is the only reusable launch vehicle in the world capable of transporting humans to and from space. This capability has made it a workhorse for the United States space program for more than 20 years. The Shuttle has been used for a variety of purposes, ranging from launching, retrieving, and servicing scientific payloads to conducting experiments on behalf of the other NASA enterprises to transporting elements of the International Space Station (ISS) into orbit.

The DoD has flown 11 dedicated missions on the Space Shuttle. NASA is proud to have provided space access to about 270 secondary DOD payloads, some 260 on the Shuttle as middeck or cargo bay payloads, and four to the Russian Space Station MIR. They were also one of the earliest users of the International Space Station (ISS). To date, four DoD payloads have used the ISS as a space based research platform. Areas of emphasis for these (and future) payloads include surveillance and weather, space control and situational awareness, satellite subsystems, assured/responsive access to space, and education.

At present, NASA remains focused on safe return to flight of the Space Shuttle and successful assembly of the ISS. The return to flight (RTF) effort is being guided by "NASA's Implementation Plan for Space Shuttle Return to Flight and Beyond." This

plan addresses NASA's approach for implementing each of the recommendations from the CAIB report.

Members of various DoD organizations and facilities are being employed to develop and validate RTF implementation approaches to fulfill the CAIB recommendations. NASA is also partnering with the DoD to respond to both technical and cultural issues outlined in the CAIB report. Some examples include the use of thermal-vacuum facilities at the Arnold Engineering Development Center and Eglin Air Force Base to test design modifications to the External Tank, collaborating with the Navy's Submarine Nuclear Reactors Program, and Submarine Safety Program to enhance NASA's processes for evaluating issues and concerns.

We are also working with the DoD to respond to the CAIB recommendations as they pertain to expendable launch vehicles (ELVs). NASA, the United States Air Force, and the National Reconnaissance Office recently held the 4th Government/Industry ELV Mission Assurance Forum on March 9-10, 2004. This forum was originally established by these agencies to ensure that the ELV lessons learned from the 1998 Presidential Broad Area Review into Launch Failures are not lost and continues to be one of the many forums established to facilitate communication between the government agencies with regards to space transportation.

The Vision for Space Exploration

Discussions have begun with the DoD in support of the Vision for Space Exploration. At this point, we are early in the process of defining requirements for the vision. The goal of this process is to develop documented requirements that are traceable, verifiable and measurable.

Definition of Level 0 requirements for the Crew Exploration Vehicle (CEV) is the responsibility of the NASA Space Architect. NASA anticipates the final set of Level 0 requirements by the end of this month, pending approval by the Joint Strategic Assessment Committee (JSAC). The JSAC is comprised of the following NASA personnel: the Space Architect (Chair), the Chief Scientist (Deputy Chair), the Enterprise Associate Administrators, Institutions Management and key functional offices.

Definition, documentation and management of Level 1 and 2 requirements will be the responsibility of the Office of Exploration Systems. Requirements will be subject to an open and formal review and approval process to be managed by the Office of Exploration Systems. The Office of Exploration Systems will develop necessary companion products, including a Management Plan. Parts of this process are the studies and systems analysis of potential exploration scenarios to be conducted as a means of bounding the requirements trade space and developing meaningful figures of merit to be used in the design and development of the CEV.

A Requirements team, lead by Office of Exploration Systems is focusing on developing these requirements and scenarios. This activity began in February 2004. A rigorous requirements formulation approach will yield Level 1 requirements in early September 2004. At that time, the requirements will be provided to the JSAC for approval. The

JSAC will present the requirement to the Executive Council, which is composed of the following NASA personnel: the Deputy Administrator (Chair), the Associate Deputy Administrator for Institutions, the Associate Deputy Administrator for Technical Programs, the Enterprise Associate Administrators, the Chief Engineer, the Safety and Mission Assurance Associate Administrator, the Chief Financial Officer, and the General Council. The Executive Council will have the ultimate approval authority for CEV requirements. This effort will be followed by a solicitation in Fall 2004 for concept development. Level 2 requirements will be baselined in early 2005.

In order to develop safe, reliable, and cost-effective requirements for space launch vehicles to implement NASA's Vision for Space Exploration, it is essential to learn from past and present programs such as the Space Shuttle, the Space Launch Initiative, the Orbital Space Plane (OSP), and Next Generation Launch Technology. The Requirements team, lead by the Office of Exploration Systems, will focus on developing these requirements and scenarios utilizing these lessons learned. Knowledge from OSP will help define the fundamental requirements necessary for developing missions beyond Earth orbit.

The Office of Exploration Systems will work closely with the DoD throughout the requirements process. Once requirements have been defined, future relationships with DoD will be further developed in terms of identifying new areas for collaboration and cooperation.

Conclusion

NASA's Office of Space Flight and the Department of Defense (DoD) have a long history of cooperation on services that range from staffing our astronaut corps to collaborating on numerous space technology projects. Although we have different missions, we share many of the same issues, technical challenges, and requirements. Working together we have formed partnerships to maximize our unique resources. Through numerous cooperative efforts, the American people have benefited by our joint endeavors in space and on the Earth.

I sincerely appreciate the forum that the Committee has provided today, and I look forward to responding to your questions.